

Application Serial No: 10/712,770
Responsive to the Office Action mailed on: June 27, 2007

REMARKS

This Amendment is in response to the Office Action mailed on June 27, 2007. Claims 3, 6, 15, 24, 29 and 36 are amended. Claim 3 is amended to include the features of claims 1 and 2. Claims 6, 15, 24 and 36 are amended to track claim 3. Claim 29 is amended to include the features of claim 1. Claims 1, 2, 17, 25-28, 33-35, 37 and 38 are cancelled without prejudice or disclaimer. No new matter is added. Claims 3-16, 18-24, 29-32 and 36 are pending.

Form 1449:

Please note that the prior art reference, Nishida, et al. (US Patent No. 4,996,600), submitted in an April 28, 2006 Information Disclosure Statement, was not initialed on the 1449 form sent with the current Office Action. Confirmation of consideration for this reference is requested.

Drawing Objections:

The drawings are objected to for failing to show every feature of the claimed invention. In particular, the drawings are objected to for failing to show the features of claim 17. Claim 17 is now cancelled without prejudice or disclaimer. Accordingly, this objection is now moot. Withdrawal of this objection is requested.

§112, First Paragraph:

Claim 17 is rejected as failing to meet the enablement requirement. As stated above, claim 17 is cancelled without prejudice or disclaimer. Accordingly, this rejection is now moot. Withdrawal of this rejection is requested.

§102 Rejections:

Claims 1, 2, 6, 7, 15, 16, 25-28 and 33-36 are rejected as being anticipated by Iizuka (US Patent No. 6,686,960). This rejection is traversed. Claims 1, 2, 25-28 and 33-35 are cancelled without prejudice or disclaimer. Claims 15, 16 and 36 depend from claim 3 and are allowable for at least the same reasons described below. Applicants do not concede the correctness of this rejection.

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§103 Rejections:

Claims 3-5, 8-12, 14 and 29-32 are rejected as being unpatentable over Iizuka in view of Ikeda (US Patent No. 6,423,959). This rejection is traversed.

Claim 3 is directed to a solid-state image sensing device that requires, among other features, signal charges of pixels included in each of first and second pixel mixture groups are added together in the horizontal transfer part, where the first pixel mixture groups each are composed of $2n+1$ (n denotes an integer of 1 or higher) pixels arranged at every other pixel in a horizontal direction, and the second pixel mixture groups each are composed of $2n+1$ pixels that are arranged at every other pixel and are pixels other than those of the first pixel mixture groups. An advantage of $2n+1$ pixels arranged at every other pixel in a horizontal direction is that the formation of moiré and aliasing is avoided.

The combination of Iizuka and Ikeda does not teach or suggest these features. The rejection relies on Figure 16 of Ikeda as teaching first and second pixel mixture groups, each containing $2n+1$ pixels. However, Figure 16 of Ikeda teaches photoelectric converters (3) composed of charge ranging from y_{n+7} to y_n and arranged at in a vertical direction. Nowhere does Ikeda teach or suggest that each photoelectric converter (3) is composed of $2n+1$ charge and arranged in a horizontal direction, as required by claim 3. Moreover, there is no motivation to modify the features of Ikeda to the features of claim 3. Ikeda uses charge proportions of y_{n+7} to y_n arranged in a vertical direction to increase the readout period at which signal charges are read out from the vertical transfer parts. Nowhere does Ikeda contemplate preventing moiré or aliasing by modifying its charge for each photoelectric converter (3) to $2n+1$ and to arrange the photoelectric converters (3) in a horizontal direction. Iizuka does not overcome these deficiencies. For at least these reasons claim 3 is not suggested by the combination of Iizuka and Ikeda and should be allowable. Claims 4, 5, 8-12 and 14 depend from claim 3 and should be allowable for at least the same reasons.

Claim 29 is directed to a solid-state image sensing device that requires, among other features, an operation mode that can be switched selectively between at least two modes including a mode of mixing m_1 pixels arranged horizontally and a mode of mixing m_2 pixels arranged, where the integer m indicates a common multiple of m_1 (m_1 denotes an integer of 2 or higher) and m_2 (m_2 denotes an integer of 2 or higher).

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The combination of Iizuka and Ikeda does not teach or suggest these features. The rejection relies on Figures 12 and 14 of Ikeda as teaching at least two modes including a mode of mixing m_1 pixels arranged horizontally and a mode of mixing m_2 pixels arranged horizontally. However, Ikeda merely teaches a mode in which charge arranged in a vertical direction is mixed together. Nowhere does Ikeda teach or suggest a mode of mixing m_1 pixels arranged horizontally and a mode of mixing m_2 pixels arranged horizontally, as required by claim 29. Iizuka does not overcome these deficiencies. For at least these reasons claim 29 is not suggested by the combination of Iizuka and Ikeda and should be allowable. Claims 30-32 depend from claim 29 and should be allowable for at least the same reasons.

Claim 13 is rejected as being unpatentable over Iizuka in view of Ikeda and further in view of Uya (US Patent No. 7,199,826). This rejection is traversed. Claim 13 depends from claim 3 and is allowable for at least the same reasons discussed above. Applicants do not concede the correctness of this rejection.

Claims 37 and 38 are rejected as being unpatentable over Iizuka in view of Yamamoto (US Patent No. 5,436,661.). This rejection is traversed. Claims 37 and 38 are now cancelled without prejudice or disclaimer. Accordingly, this rejection is now moot. Withdrawal of this rejection is requested.

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Conclusion:

Applicants respectfully assert that claims 3-16, 18-24, 29-32 and 36 are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.



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Respectfully submitted,

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